IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Antonio Digiandomenico et al. Art Unit : Unknown
Serial No. : Examiner : Unknown
Filed : October 11, 2001
Title : PROGRAMMABLE ECHO CANCELLATION FILTER

Commissioner for Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Prior to examination, please amend the application as follows:

In the specification:

Insert the following on page 1, line 4:

--FIELD OF THE INVENTION--

Insert the following on page 1, line 8:

--BACKGROUND OF THE INVENTION--

Insert the following on page 3, line 5:

--SUMMARY OF THE INVENTION--

On page 3 delete lines 10 through 13.

Insert the following on page 6, line 16:

--BRIEF DESCRIPTION OF THE DRAWINGS--

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I hereby certify under 37 CFR §1.10 that this correspondence is being deposited with the United States Postal Service as Express Mail Post Office to Addressee with sufficient postage on the date indicated below and is addressed to the Commissioner for Patents, Washington, D.C. 20231.

October 11, 2001
Date of Deposit

Signature

Leroy Jenkins
Typed or Printed Name of Person Signing Certificate

In the claims:

Amend the following claims:

1. (Once Amended) A programmable echo cancellation filter for echo signal cancellation for a transceiver, said filter comprising:

a signal output;

a signal input for receiving the transmission signal emitted by the transceiver;

an input resistor connected to the signal input;

an operational amplifier, having a signal input connected to the input resistor and having a signal output connected to an output resistor;

a first programmable resistor circuit provided between the signal output of the operational amplifier and the signal input of the operational amplifier;

a second programmable resistor circuit provided between the output resistor and the signal output;

a third programmable resistor circuit provided between the first programmable resistor circuit and the signal output;

the first, second, and third programmable resistor circuits each having a plurality of switching elements connected in parallel each switching elements having a resistor and the associated controllable switch,

controllable switch having a first terminal connected to the resistor and a second terminal connected to a virtual reference voltage terminal.

2. (Once Amended) The programmable echo cancellation filter as claimed in claim 1, further comprising a control terminal associated with each of the controllable switches, of the programmable resistor circuit, the control terminal being connected via a control line to a control circuit for setting the resistance of the programmable resistor circuit.

3. (Once Amended) The programmable echo cancellation filter as claimed in claim 2 wherein the control circuit comprises a DSP processor.

4. (Once Amended) The programmable echo cancellation filter as claimed in claim 1, wherein the controllable switches comprise MOSFET transistors having controllable gate terminals.

5. (Once Amended) The programmable echo cancellation filter as claimed in claim 1, further comprising a capacitor connected to the low-impedance node.

6. (Once Amended) The programmable echo cancellation filter as claimed in claim 1, wherein the controllable switches of the first programmable resistor circuit are connected to the signal input of the operational amplifier.

7. (Once Amended) The programmable echo cancellation filter as claimed in claim 1, wherein, the controllable switches of the second programmable resistor circuit and the controllable switches of the third programmable resistor circuit are connected to the signal input of an operational amplifier of an automatic gain control circuit of the transceiver.

8. (Once Amended) The programmable echo cancellation filter as claimed in claim 1, further comprising a supply voltage terminal for connection to a low supply voltage.

9. (Once Amended) The programmable echo cancellation filter as claimed in claim 1, wherein the echo cancellation filter is of fully differential construction.

10. (Once Amended) The programmable echo cancellation filter as claimed in claim 1, wherein the echo cancellation filter comprises a first-order analog low-pass filter.

11. (Once Amended) The programmable echo cancellation filter as claimed in claim 1, wherein the echo cancellation filter comprises a higher order analog low-pass filter.